30 Sept 2021

Parcel G Soil SR-90 Findings

- In accordance with the work plan, 10 percent of systematic soil samples are analyzed for strontium-90 (Sr-90) using method EPA 905.0 MOD.
- From the first 87 samples that were analyzed for Sr-90, one sample from survey unit TU 124 (HPPG-ESU-TU124A-021) returned a result of 0.451 pCi/g. In survey unit TU 79, one sample (HPPG-ESU-TU079A-001) returned a result of 0.334 pCi/g. Both of these exceed the Sr-90 remediation goal (RG) of 0.331 pCi/g
- Four additional aliquots from each of these samples were analyzed. Results from additional samples did not reproduce the detections, indicating that the original sample result was not representative of strontium in the soil sample.
- It is important to note that the uncertainty in many results is high enough to affect whether or not the sample result is above or below the RG. Large uncertainties indicate imprecise measurements.
- Following these two detects, additional unvalidated sample analyses had returned over 20 results above the Sr-90 remediation goal (RG) of 0.331 pCi/g, approximately 10% of all Sr-90 samples. These sample results are from primary results and field duplicates. A portion of the primary samples collected were from clean import fill. Lab blank results have also indicated Sr-90 is present, although below the remedial goal.
- A statistical evaluation of the data collected indicates that the expected rate of false positives is higher than the 5% maximum false positive rate called out in the work plan.
- Chemists and other experts have evaluated the Sr-90 measurement technique, and determined that the laboratory method is not consistent with the Data Quality Objectives of the WP. The current method results in too much uncertainty and too high of a detection limit when compared to our very low remedial goal. We therefore cannot determine with current data if the sample contains strontium above or below our remedial goal.

Path Forward

- A more precise approach is being implemented that runs the same laboratory method in a way that the data is useable and reliable for this project. Going forward, the laboratory will use a 2.5 gram aliquot for analysis, versus the previous 1 gram for analysis. The lab will also use 14 day ingrowth versus the 7 day ingrowth.
- The updated approach is more appropriate for the low Sr-90 remedial goal and will:
    - Reduce measurement uncertainty
    - Result in a lower detection limit (below the remedial goal)
    - Allow for an evaluation of very low concentrations near the remedial goal, and
    - Reduce associated false positives and false negatives.
- All samples analyzed for strontium will be re-analyzed using the updated method.